

# Initial segments of computable linear orders with computable natural relations

Bikmukhametov R.

*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

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## Abstract

© 2016, Allerton Press, Inc. We study the algorithmic complexity of natural relations on initial segments of computable linear orders. We prove that there exists a computable linear order with computable density relation such that its  $\Pi_1^0$ -initial segment has no computable presentation with a computable density relation. We also prove that the same holds for a right limit and a left limit relations.

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## Keywords

density relation, initial segment, left limit relation, linear order, right limit relation